ANALYTICAL REPORT

Attachment F

Information Request #3

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6602
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 1B SOLIDS

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC	<0.5	mg/l
The reporting limit for arsenic was increased due to the nature of the sample matrix.		
BARIUM	<0.1	mg/l
CADMIUM	0.051	mg/l
CHROMIUM	<0.05	mg/l
LEAD	<0.05	mg/l
MERCURY	<0.0005	mg/l
SELENIUM	<0.02	mg/l
SILVER	<0.01	mg/l

The above analyses were performed on the EP Toxcicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the sub[redacted] characteristic of EP Toxicity as defined in Section 261.24 Federal Register 1980 p. 33122.

*Analysis performed by,
Lancaster Laboratories, Inc.

Respectfully submitted,

Warner Woolfenden Sr

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6602
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 1B SOLIDS

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	550. mg/kg
MOISTURE	32.3 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

SULFIDE	<6. mg/kg

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6603
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 1B SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	4.37	
ARSENIC	3.05	mg/l
BARIUM	<0.5	mg/l
CADMIUM	1.05	mg/l
CHROMIUM	<0.2	mg/l
COPPER	0.51	mg/l
LEAD	<1.	mg/l
MERCURY	<0.005	mg/l
SELENIUM	<0.1	mg/l
SILVER	<0.05	mg/l
TOTAL ORGANIC CARBONS	16.	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6598
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 1C SOLIDS

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC AQUEOUS	129.	mg/l
BARIUM	<0.1	mg/l
CADMIUM	65.4	mg/l
CHROMIUM	0.54	mg/l
LEAD	3.13	mg/l
MERCURY	<0.0005	mg/l
SELENIUM	<0.1	mg/l

The reporting limit for Selenium was increased due to the nature of the sample matrix.

SILVER	0.11	mg/l

The above analyses were performed on the EP Toxcicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the submitted [redacted] as defined in Section 261.24 Federal Register 1980 p. 33122. [redacted].

*Analysis performed by,
Lancaster Laboratories, Inc.

Respectfully submitted,

Warner R. Woolfenden

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6598
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 1C SOLIDS

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	570. mg/kg
MOISTURE	5.4 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

SULFIDE	6. mg/kg

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6599
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 1C SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	0.24	
ARSENIC	11800.	mg/l
BARIUM	<0.5	mg/l
CADMIUM	221.	mg/l
CHROMIUM	3.3	mg/l
COPPER	8210.	mg/l
LEAD	63.	mg/l
MERCURY	0.027	mg/l
SELENIUM	<1.	mg/l
SILVER	0.06	mg/l
TOTAL ORGANIC CARBONS	140.	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6608
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 2 SOLIDS

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC	4.71	mg/l
BARIUM	<0.1	mg/l
CADMIUM	0.546	mg/l
CHROMIUM	0.15	mg/l
LEAD	2.72	mg/l
MERCURY	<0.0005	mg/l
SELENIUM	<0.02	mg/l
SILVER	0.01	mg/l

The above analyses were performed on the EP Toxicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the [redacted] as defined in Section 261.24 Federal Register 1980 p. 33122.

*Analysis performed by,
Lancaster Laboratories, Inc.

Respectfully submitted,

Warner Woolfenden

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6608
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 2 SOLIDS

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	2100. mg/kg
MOISTURE	28.9 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

SULFIDE	<8. mg/kg

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6609
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

2 correction from lab

SAMPLE ID: POND ~~2B~~ ~~SOUTH~~ SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	0.95	
ARSENIC	720.	mg/l
BARIUM	<0.5	mg/l
CADMIUM	19.8	mg/l
CHROMIUM	7.4	mg/l
COPPER	1170.	mg/l
LEAD	5.	mg/l
MERCURY	<0.005	mg/l
SELENIUM	<1.	mg/l
SILVER	0.1	mg/l
TOTAL ORGANIC CARBONS	490.	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6600
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 2A SOLIDS

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC	12.1	mg/l
BARIUM	<0.1	mg/l
CADMIUM	0.096	mg/l
CHROMIUM	0.42	mg/l
LEAD	0.21	mg/l
MERCURY	<0.0005	mg/l
SELENIUM	<0.02	mg/l
SILVER	<0.01	mg/l

The above analyses were performed on the EP Toxcicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the submitted sample [redacted] as defined in Section 261.24 Federal Register 1980 p. 33122. [redacted]

*Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6600
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 2A SOLIDS

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	1400. mg/kg
MOISTURE	16.3 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

There was insufficient sample to perform sulfide analysis.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6601
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: POND 2A SOLUTION

ANALYSIS	RESULT AS RECEIVED
pH	1.23
ARSENIC	263. mg/l
BARIUM	<0.5 mg/l
CADMIUM	3.78 mg/l
CHROMIUM	7.6 mg/l
COPPER	334. mg/l
LEAD	4. mg/l
MERCURY	<0.005 mg/l
SELENIUM	<1. mg/l
SILVER	<0.05 mg/l
TOTAL ORGANIC CARBONS	150. mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6610
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3A SOLIDS

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC	7.90	mg/l
BARIUM	<0.1	mg/l
CADMIUM	0.152	mg/l
CHROMIUM	3.01	mg/l
LEAD	<0.2	mg/l

The reporting limits for lead was increased due to the nature of the sample matrix.

MERCURY	<0.0005	mg/l
SELENIUM	<0.02	mg/l
SILVER	<0.01	mg/l

The above analyses were performed on the EP Toxcicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the submitted sa[redacted] as defined in Section 261.24 Federal Register 1980 p. 33122. [redacted]t.

*Analysis performed by,
Lancaster Laboratories, Inc.

Respectfully submitted,

Warner Woolfenden

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6610
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3a SOLIDS

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	2200. mg/kg
MOISTURE	34.5 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

SULFIDE	<6. mg/kg

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director

1645 West 2200 South, Salt Lake City, Utah 84119 (801) 973-0050

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6612
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3A SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	1.48	
ARSENIC	218.	mg/l
BARIUM	<0.5	mg/l
CADMIUM	2.59	mg/l
CHROMIUM	37.0	mg/l
COPPER	97.6	mg/l
LEAD	1.	mg/l
MERCURY	<0.005	mg/l
SELENIUM	<1.	mg/l
SILVER	<0.05	mg/l
TOTAL ORGANIC CARBONS	210.	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6606
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3B SOUTH SOLIDS

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC	3.52	mg/l
BARIUM	<0.1	mg/l
CADMIUM	0.117	mg/l
CHROMIUM	1.13	mg/l
LEAD	<0.2	mg/l

The reporting limit for arsenic was increased due to the nature of the sample matrix.

MERCURY	<0.0005	mg/l
SELENIUM	<0.02	mg/l
SILVER	<0.01	mg/l

The above analyses were performed on the EP Toxcicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the [redacted] defined in Section 261.24 Federal Register 1980 p. 33122.

*Analysis performed by,
Lancaster Laboratories, Inc.

Respectfully submitted,

Warner Woolfenden

Lee A. Seats, B.S.. Mgr.
Inorganic Analysis

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6606
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3B SOUTH SOLIDS

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	4200. mg/kg
MOISTURE	23.5 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

SULFIDE	<6. mg/kg

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6607
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3B SOUTH SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	1.14	
ARSENIC	53.5	mg/l
BARIUM	<0.5	mg/l
CADMIUM	4.43	mg/l
CHROMIUM	40.5	mg/l
COPPER	4.48	mg/l
LEAD	0.08	mg/l
MERCURY	<0.005	mg/l
SELENIUM	<1.	mg/l
SILVER	<0.05	mg/l
TOTAL ORGANIC CARBONS	190.	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6605
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/20/88
DISPOSAL DATE: 01/19/89

SAMPLE ID: POND 3B North SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	1.70	
ARSENIC	32.5	mg/l
BARIUM	<0.5	mg/l
CADMIUM	0.95	mg/l
CHROMIUM	12.1	mg/l
COPPER	6.05	mg/l
LEAD	<1.	mg/l
MERCURY	<0.005	mg/l
SELENIUM	<1.	mg/l
SILVER	<0.05	mg/l
TOTAL ORGANIC CARBONS	69	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

Analysis performed by,
Lancaster Laboratories, Inc.

Lee A. Seats, B.S. Mgr.
Inorganic Analysis

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

CLIENT: Hecla Mining Company
P.O. Box C-8000
Coeurd' Alene, ID. 83814

ATTN: Mr. Ron Kahler

LAB NO: 6596
GROUP NO: 645
DATE SAMPLED: 11/22/88
TIME SAMPLED:
DATE RECEIVED: 11/23/88
DATE REPORTED: 12/16/88
DISPOSAL DATE: 01/15/89

SAMPLE ID: SURGE POND SOLID

ANALYSIS	RESULT AS RECEIVED	
EP TOX EXTRACTION:		
ARSENIC AQUEOUS	11.2	mg/l
BARIUM	<0.1	mg/l
CADMIUM	0.153	mg/l
CHROMIUM	0.08	mg/l
LEAD	2.85	mg/l
MERCURY	<0.0005	mg/l
SELENIUM	<0.02	mg/l
SILVER	<0.01	mg/l

The above analyses were performed on the EP Toxcicity leachate of the submitted waste prepared according to the procedure specified in Federal Register May 19, 1980 p. 33127.
A sample is considered EP Toxic if any of the contaminate concetrations (mg/l) in the leachate exceed the following maxima (100 time the Primary Drinking Water Standards):
Barium 100.0, Cadmium 1.0, Chromium 5.0, Lead 5.0, Mercury 0.2, Selenium 1.0, Silver 5.0, Endrin 0.02, Lindane 0.4, Methoxychlor 10.0, Toxaphene 0.5, 2,4-D 10.0, 2,4,5-TP 1.0.
Based on the determinations performed, the submitted sample does not exhibit the characteristic of EP Toxicity as defined in Section 261.24 Federal Register 1980 p. 33122.

Analysis performed by,
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Inorganic Analysis

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SAMPLE ID: SURGE POND SOLID

ANALYSIS	RESULT AS RECEIVED
TOTAL ORGANIC CARBONS	360. mg/kg
MOISTURE	36.0 % by wt.

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

SULFIDE	<6. mg/kg

Analysis performed by,
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Inorganic Analysis

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SAMPLE ID: SURGE POND SOLUTION

ANALYSIS	RESULT AS RECEIVED	
pH	0.01	
ARSENIC	3350.	mg/l
BARIUM	<0.5	mg/l
CADMIUM	22.6	mg/l
CHROMIUM	1.5	mg/l
COPPER	3190.	mg/l
LEAD	3.	mg/l
MERCURY	0.027	mg/l
SELENIUM	<1.	mg/l
SILVER	0.07	mg/l
TOTAL ORGANIC CARBONS	190.	mg/l

The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC".

The reporting limits for the metals determination were increased due to the nature of the sample matrix.

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Lee A. Seats, B.S. Mgr.
Inorganic Analysis

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